Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 42. May, 1940. No. 497.

SUGGESTIONS FOR COLLECTORS

JOHN M. FOGG, JR.

SEVERAL articles have appeared during the last few years urging that collectors of vascular plants exercise greater care in the preparation and documentation of their field specimens.[1] That these suggestions have been seriously taken to heart and rigorously put into practice by all of us is a consummation which, however devoutly it may be desired, probably lies nearer to the millenium than to the present. Perhaps the very multiplicity of the rules prescribed may, in some measure, defeat the results they are designed to accomplish. Even the conscientious collector, feeling himself incapable of obeying all of the "don'ts" and "musts," may adopt a "what's the use" attitude and lapse into his former indifferent habits.

Yet it is a sad fact that all herbaria contain far too many specimens which have little or no value for the serious student, merely because the collector neglected to procure representative portions of the plant or failed to supply on his label such vitally important information as the color of the corolla or the fruit when fresh. All too frequently such an inadequate sheet will be the only one from an area of strategic significance, yet the monographer or phytogeographer will be forced to ignore it because of its imperfections. I can speak feelingly on this subject as I am at present engaged in a study of the flora of

---

[1] *Collecting, Drying and Mounting of Plant Specimens.* J. Lunell. Amer. Midl. Nat. **5**: 191 (1918). *The Preparation of Botanical Specimens for the Herbarium.* I. M. Johnston. Arnold Arb. 1939. *Plant Collecting Manual for Field Anthropologists.* F. R. Fosberg. Philadelphia, Pa., 1939.

Pennsylvania which involves the careful examination of something like two hundred thousand sheets from five important herbaria. A distressingly large number of these specimens can not be cited because their poor quality makes satisfactory identification impossible. Some are too immature, some lack the basal parts, others are sterile, while in still others the reproductive structures are too poorly displayed or their nature too inadequately noted on the label to permit them to be studied effectively. These are just a few of the deficiencies which render much herbarium material practically useless. A great many other sheets have to be ignored in any floristic work because the locality data supplied on the label are too ambiguous or inaccurate. But that is another matter, one with which I am not at present concerned.

It has long seemed to me that if the average collector had in mind a selected list of the most necessary chores he would be more likely to accomplish them than if the ideal of absolute perfection were held up before him. An example or two may serve to make clear what I mean.

We have all been taught, and continue to teach those who follow us, that to be acceptable a specimen of an herbaceous plant should include, whenever possible, the complete underground system. In actual practice, however, many collections are made in which only the tops of the plant are secured or in which the roots have been incompletely lifted or imperfectly cleaned. It is not enough merely to loosen the soil with the point of a pick or trowel and then pull; every effort should be made to remove the base of the plant intact from the ground and then to wash it clean so as to display all the subterranean structures. Now it must be admitted that perhaps the majority of our native plants can, according to the present manual treatments, be identified in the absence of their underground parts. And certainly no conscientious botanist would encourage the extermination of rare and localized species by insisting that their roots be destroyed. Nevertheless it is a fact that in an increasing number of genera important diagnostic characters are found to reside in the roots and rhizomes. Recent revisions of such critical groups as *Scleria, Streptopus* and *Rhexia* have conclusively demonstrated that a thorough understanding of the specific entities involved can be gained only from material in which the basal organs are fully exhibited. The number of such genera increases yearly and an attempt will be made below to emphasize only the more outstanding ones.

Another type of effort concerns the recording of observations which can be made only in the field or on fresh material. No taxonomist would deny the fundamental usefulness of notes dealing with, let us say, the color and markings of the corolla. Yet lamentably few labels bear such data. Perhaps collectors feel that the approximately 5000 species in the Gray's Manual range can be recognized with sufficient ease and certainty to render unnecessary the noting down of these facts. They allow the dried specimen to speak for itself and in many instances its eloquence justifies their confidence in it. In countless other cases, however, the pressed plant is incapable of saying for itself what we could so easily have said about it on the label, had we taken the trouble. Two examples must suffice to illustrate this point. Our two native eastern species of *Impatiens* can be readily distinguished on the basis of the color of their corollas, yet I venture to say that not more than one collector in ten records this evidence on his label. Perhaps the remaining nine comfort themselves with the thought that there is a second character in the relative length of the spurs which will serve to separate these two plants when carefully pressed, and so long as no subspecific categories were recognized this view may have been warranted. But in 1925 Weatherby published a paper calling attention to several distinct color forms in *I. biflora,* the recognition of which depends primarily on the pattern of marking on the corolla.[1] The student of plant distribution would like to know whether these forms are of mere sporadic occurrence or whether they have separate geographic ranges. Unfortunately, these answers will not be forthcoming until such time as collectors have learned to make such observations in the field and transcribe them on their herbarium labels.

Or take, as a second instance, the structure and color of the flowers of certain Orchidaceae. Anyone who attempts to determine from dried material the species of such genera as *Corallorhiza, Spiranthes* and *Habenaria* realizes how important is a knowledge of the length and shape of the spur and the nature and markings of the lip. This information may of course be partly gained by boiling up the dried flowers. But collectors would confer a real and time-saving service to students if they would only take the slight pains necessary to ascertain and record these facts while they have the fresh specimens in hand.

---

[1] Rhodora **21**: 98 (1919).

Perhaps it can not reasonably be expected that an active field botanist, one, say, who collects two or three thousand numbers during a growing season, will have time and energy to make such notes on every sheet he prepares. It is therefore the function of this article to call attention to those particular groups in which, at least in the light of our present knowledge, this kind of observation will prove most helpful to the monographer and the student of distribution.

Before passing to the individual examples, however, there is one general matter which appears to me of such signal importance that it deserves separate and special emphasis, and that is the collecting of extra flowers and fruits. Whenever possible, it is highly desirable to secure additional material of the reproductive structures for subsequent dissection and study. In the case of grasses, sedges, rushes and many other groups it is a simple matter to procure and place in press with the specimen a number of inflorescences or tops from neighboring plants. Great care should of course be exercised to insure that these are taken from members of the same colony or the same undoubted species, in order that no mixture occurs. When the species is fruticose or arboreal, additional sprays or individual flowers can readily be removed from the same plant and laid in press. These supplementary parts can eventually be placed in pockets affixed to the mounted sheet and an abundance of material for study will thus be available without having to destroy or mutilate the herbarium specimen.

The following examples are arranged in systematic sequence and although the list is designed primarily for field work in eastern temperate North America it may in large measure be applied to other sections of the country. Grateful acknowledgement is due my friend and companion on many field-trips, Mr. Bayard Long, who has scrutinized these "agenda" and suggested several pertinent additions. Professor M. L. Fernald and Mr.

C. A. Weatherby have likewise made valuable suggestions which are incorporated herein.

POLYPODIACEAE. There is evidenced on the part of collectors an increasing tendency to content themselves with but a single leaf when pressing ferns. This practice may be condoned in the case of some of the larger forms, but only if an attempt is made to secure a sporulating frond and to lay it out so that the sori are clearly displayed. In the case of dimorphic types both sterile and fertile fronds should be collected. In both instances it is well to get the entire stipe, since diagnostic characters may reside in the lowermost scales. In such genera as *Athyrium* (especially *A. angustum* and *A. asplenioides*) and *Cystopteris* the nature of the rootstock has been stressed in recent revisions; it should therefore be collected or notes made on its habit. In *Dryopteris spinulosa* and closely related species it is vitally important to arrange the lower pair of pinnae so that the relative lengths of the pinnules may be clearly seen.

LYCOPODIUM. The separation of *L. tristachyum* and *L. complanatum*, var. *flabelliforme* is greatly facilitated by a knowledge of the position of their rootstocks. These should either be collected or a note made as to whether they are deep-seated or superficial.

ISOETES. Most herbaria contain far too many sterile specimens of this genus. For critical study material possessing megaspores, and in some cases microspores, is essential. Notes on habitat, and whether the plant was emersed or submerged, will prove helpful. A highly praiseworthy practice is that of splitting several of the plants vertically and mounting them so that the opened inner half is exposed. This will reveal the important structure of the inner side of the leaf-base without requiring the mutilation of the rosette, as would otherwise be the case. All detached sporophylls should be saved and pocketed.

PICEA. Differentiation between *P. rubra* and *P. mariana* is often difficult and, in the case of much herbarium material, practically impossible. Mature cones are of utmost value, as are notes on the color of the fresh foliage.

PINUS. Here, likewise, cones are often needed for satisfactory identification. In the case of tall trees, they may frequently be found on the ground directly underneath, and may with reasonable safety be added to the specimen. Notes should always be provided on the character of the bark and the height of the tree.

NAJADACEAE and all small-leaved floating aquatics must be carefully floated out on sheets of white paper. This can readily be done in the field, if sheets of plain paper are carried in the press, or at home by utilizing a basin or pan of water. Considerable care may be needed to avoid mounting two or more species on the same sheet. In the linear-leaved species of *Potamogeton* stipules have been found important and ought, when present, to be clearly displayed.

Elodea (Anacharis). Recent treatments of this genus have stressed floral characters. Botanists who have ready access to localities where these plants grow would do well to defer their collecting of them until such season as flowers are present.

Gramineae. Grasses are usually easy to collect and press, and there is no excuse for making poor specimens. Many sheets err in being too copious. It is better in many densely tufted species to divide the plant (taking care to note on the label "Portion of clump") than to crowd the sheet so that the inflorescences may be poorly shown and such diagnostic characters as the ligules completely obscured. At least some of the leaves should be pressed out perfectly flat, so that their width may be measured. If the specimen itself does not show whether the plant was cespitose or stoloniferous, this information may be noted on the label. As mentioned above, extra tops in this and the next family are highly useful.

Cyperaceae. In many sedges the base of the plant is of great importance and an effort should be made to lift it intact. Here again there is usually an advantage in not having the sheet too full. The sheath is often of critical significance, especially in *Carex*, and in good specimens some of the culms will be so arranged as to display it. Collectors will do well to refrain from gathering *Carex* before the perigynia have filled out; herbaria are already too well supplied with immature specimens which can never be satisfactorily named. Overripe material is almost as undesirable, although in this case the disintegrating spikes can often be salvaged and placed in pockets.

Arisaema. Recent work has shown the character of the corm, and whether or not it produces offsets, to be helpful in separating species. Notes are needed as to whether the under side of the leaflet is green or glaucous and on the shape and coloration of the spathe. The characteristic fluting of the spathe of *A. Stewardsonii* is usually not discernible in the pressed specimen and the student is always grateful when this information is supplied on the label.

Commelinaceae. Observations on the color of the petals and the anthers are very acceptable in *Tradescantia* and *Commelina*. In both these genera the flowers can be successfully preserved by placing them between folds of waxed paper.

Juncus. Many of the points mentioned under grasses and sedges apply also to the rushes. With a little care in the laying out of the plant the structure of the ligule, which is all-important in some species, can be brought into view. Everyone who has attempted to identify our eprophyllate rushes has had difficulty with specimens in which it was almost impossible to determine whether the number of stamens was 3 or 6. This is a matter which can often easily be settled in the fresh condition and a note to this effect will save much time spent in boiling up dry flowers.

ALLIUM. Comments on the nature of the bulb-coat (whether membranous or reticulated) are in order here. Even when the bases are carefully collected, the bulb-coats frequently fall apart and are lost before the plant is mounted. Since the leaves may be either flat or terete, and this is not always easily seen in the mounted specimen, this too should be mentioned.

ERYTHRONIUM. The color of the perianth merits a note. In cases where the relative lengths of the stigmas may not be shown, color provides the best differentiation between *E. americanum* and *E. albidum.*

SMILAX. If the specimen is collected from the top of the plant, the label should tell whether the main axis was prickly or unarmed. A statement on the color of the fruit is always welcome.

STREPTOPUS. Fassett's recent revision of this genus stresses the nature of the basal system in separating the varieties of *S. roseus.*

DIOSCOREA. The distinction between *D. villosa* and *D. quaternata* is brought out more clearly by collecting typical portions of the main stem, rather than just the tips. In both, the leaves may be alternate near the top of the plant, but lower down the axis the verticillate phyllotaxy of the latter species is clearly seen. The rhizomes, too, are strikingly different.

IRIS. Here, again, the use of waxed paper is necessary in order perfectly to preserve the perianth.

SISYRINCHIUM. While the temptation to collect these attractive plants in flower is great, it should be remembered that the taxonomic usefulness of fruiting material is much greater.

ORCHIDACEAE. Information concerning the shape, color and markings of the lip (labellum) is well nigh indispensable in many orchid genera, e. g., *Habenaria, Spiranthes, Listera, Corallorhiza.* As a specific instance may be mentioned the very close resemblance between *Habenaria ciliaris* and *H. blephariglottis.* The conformation of the lip is almost identical in these two species and flower-color furnishes the best character for differentiation. In many dried specimens however, especially older ones, it is impossible to tell whether the corolla was white or yellow and a separation which would have been rendered certain by a simple entry on the label is reduced to guesswork.

SALIX. A critical knowledge of willows can, in many cases, be acquired only by collecting flowers, leaves and fruit from the same plant. Since these usually mature at different times it may be necessary when gathering flowers, to tag the plant so that it may be visited again some weeks later for foliage and fruit. Often old fruiting catkins may be found on the ground beneath the plant. If their origin is not open to question, they may be added to the sheet and a note made on the label, "Collected from ground beneath specimen."

Carya. Either a section of bark should be collected or a note supplied on its character; preferably both. Observations on the height and shape of the tree are also helpful.

Betula. Good specimens of birches will include a strip of bark. An effort should made to procure fruiting catkins and to note the size and shape of the tree.

Quercus. Too few specimens of oaks are provided with fruit. While not always vital for purposes of identification, acorns are essential to the understanding of certain critical species. Facts concerning the height of the tree are also helpful in a few cases, such as puzzling forms of *Q. prinoides* and *Q. Muhlenbergii.*

Celtis. Notes on the color and shape of the ripe fruit, as well as the size of the tree, are of real value.

Caryophyllaceae. The separation of *Lychnis* and *Silene*, often difficult in pressed material, is a simple affair when the number of styles is known; this fact is easy to ascertain and note when the fresh flowers are in hand. A knowledge of whether the flowers are perfect or imperfect will further serve to differentiate *L. alba* and *S. noctiflora*, which are superficially so nearly identical. Notes on corolla-color are also very desirable.

Nuphar (Nymphozanthus). Observations are needed in our spatterdocks on the shape of the petiole in transverse section (whether terete or plano-convex) and on the position of the leaf-blades (whether erect or floating).

Ranunculus. The root-systems are important in certain species.

Thalictrum. Current treatments stress the structure and color of the root system, which should be collected even if a second sheet be necessary for pressing and mounting it.

Arabis. Mature fruit is highly desirable in many species of this genus.

Dentaria. The rootstocks of *Dentaria* may be shallow or deep-rooted and prominently or obscurely toothed or jointed. These facts will bear noting.

Lepidium. The presence or absence of petals is more easily observed in fresh than in dry material and warrants a field-note.

Heuchera. In a recent revision of the alum-roots, we are required to determine whether the hypanthium is actinomorphic or zygomorphic; this is another of those points more readily ascertainable in fresh specimens.

RIBES. The color of the berries is a matter of real interest, especially in the group of the currants (subgenus *Ribesium*).

TIARELLA. The presence or absence of stolons is a feature worthy of attention; also, the color of the corolla.

AGRIMONIA. Good supporting characters are furnished by the roots or rootstocks; only seldom can these be employed in the average herbarium specimen, most of which lack bases.

AMELANCHIER. Flowers and fruit (especially the partially mature pomes) from the same individual are of prime importance in the study of our service-berries. A comment on the height of the plant is likewise helpful. In the stoloniferous species, even though the bases may not be collected, the habit should certainly be noted. Leaves of the preceding year, collected under flowering shrubs, may prove of real importance.

CRATAEGUS. This is admittedly one of the most difficult genera in eastern North America. An understanding of specific entities here can be gained only by securing flowers and fruit from the same tree; another case of revisiting marked specimens in the field. Observations are required on the approximate number of the stamens and the color of the anthers.

GEUM. The color of the petals of the small white- or yellow-flowered species of avens is frequently indistinguishable in dried material.

PYRUS (subgenus ARONIA). Notes on the color of the fresh fruit will obviate considerable guesswork in herbarium specimens of *P. arbutifolia* and its variety *atropurpurea*. The color of the anthers is also said to have diagnostic value.

ROSA. Some of the difficulties encountered in the study of this critical genus will be lessened when collectors learn to note on their labels the height of the plant, whether or not it was stoloniferous and whether it was shrubby or climbing. The foliage of the older, mature canes of *Rosa* often differs significantly from that of the vigorous new shoots. Both should therefore be collected; at least it is well to avoid taking only the latter, even though they frequently bear flowers.

RUBUS. The foliage of the flowering shoots (floricanes) and that of the sterile ones (primocanes) are usually significantly dissimilar. Orthodox methods dictate that material from both be collected and that the labels bear the symbols "part 1" and "part 2," or some other designation indicating that the two sheets appertain to the same plant. Of fundamental importance, also, is a knowledge of habit, especially in the subgenus *Eubatus*. Professor Fernald kindly furnishes the following manuscript comment. "In collecting, careful note should be made of habit, whether the canes are prostrate and tip-rooting, doming or arching and tip-rooting, or with no rooting tips. Without such careful records identification is most difficult."

Desmodium. The present classification of this genus is based primarily on fruit characters. However, the flowers are proving increasingly useful and material in bloom should not be neglected, especially if care is taken to note color and conformation of the corolla.

Lespedeza. Information on habit, whether trailing or erect, will facilitate the separation of closely related species, such as *L. repens* and *L. violacea*.

Melilotus. Since color is the most conspicuous character differentiating *M. alba* and *M. officinalis* it should be noted before it is lost in drying.

Trifolium. The difficulty occasionally met with in distinguishing *T. hybridum* from *T. repens* in the herbarium may be obviated by a statement concerning habit.

Euphorbia. The shape of the cyathium and the number, color and shape of the glands are of taxonomic significance and ought, whenever possible, to be recorded before the plants are dried.

Impatiens. Notes are helpful on the basic color of the corolla and of the nature of the markings on its throat.

Vitis. Bailey, in his recent monograph of our native grapes, stresses the structure of the carpellate flowers and the color of the pith as seen in longitudinal sections of the branchlets. Young vine-tips are important, as are notes on color and size of fruit.

Parthenocissus. *P. quinquefolia* and *P. vitacea* can be satisfactorily separated only when the inflorescences are faithfully pressed so as to show the method of branching.

Hypericum. Many a student has encountered obstacles in the divisions of the key which call for a knowledge of the number of stamens and the manner of their arrangement into groups. These points may be quickly and accurately established in the fresh condition, but if this is not done laborious boiling up of the dried flowers may be required.

Lechea. The leaves of the basal rosettes of this genus furnish valuable taxonomic characters. This is one of the many important types of material which can be collected during the dormant season, when far too little botanizing is done.

Viola. Everyone who has worked with herbarium specimens of violets has had occasion to deplore the poorly preserved condition of many of the flowers. A serious and genuine effort should be made to press carefully at least a few of the corollas on each plant. This may be facilitated by placing small pieces of moist paper over the opened corollas as the plants are laid out for drying. Notes on flower color will also be appreciated.

Rhexia. This is another genus in which recent studies have focussed attention on the underground system. This is often very delicate and needs to be lifted carefully and washed gently. The petals are fugacious. Properly to display them plants should be collected and placed in press early in the day. If a vasculum is employed the flowers may be wrapped in waxed paper as early as possible in the morning.

OPUNTIA. Modern treatments of our eastern prickly pears have laid emphasis on habit, thus inviting us to observe and note whether the plant was procumbent or upright. Large clumps should of course be divided for pressing. Individual segments may be split longitudinally and scooped out to expedite drying.

CORNUS. The scientific usefulness of specimens of *Cornus* will be materially increased by noting the color of the branches and the fresh fruit. A section of a branch should be split longitudinally to reveal the color of the pith.

SYMPETALAE. In the case of all tubular-flowered forms it is highly desirable that several extra corollas be collected, split open and pressed out flat so as to show such features as the attachment of the stamens, ratio of limb to throat, etc. This is more useful in genera of the Gentianaceae, Convolvulaceae, Polemoniaceae, Boraginaceae and a few others which will be listed in order.

RHODODENDRON. Statements concerning the height of the plant and the color of the corolla are needed.

VACCINIUM. Of paramount importance in the blueberries is information concerning the height of the plant. Also helpful are notes on the color of the flower and the fruit, especially on whether or not the latter is glaucous.

FRAXINUS. In most herbaria there is a lamentable dearth of good fruiting material of *Fraxinus*. This should be on every collector's list of desiderata. Good characters have recently been demonstrated in the anthers and the calyx.

GENTIANA. Here is one of the most urgent needs for pressing some of the opened corollas flat, as mentioned above.

SABATIA. Complete root-systems are of great importance in this genus.

APOCYNUM. Observation should be made on the shape of the corolla as well as its color.

CUSCUTA. The nature of the petals and their appendages can be best made out in the fresh flower; it is almost impossible to study the flowers of *Cuscuta* by boiling. The shape of the fruit likewise deserves mention.

CONVOLVULUS and IPOMOEA. By slitting and opening out the corolla, the shape of the stigma is disclosed and the distinction between these genera clarified.

POLEMONIACEAE. Here, also, the need for seeing the corolla opened out is great. Importance attaches in *Phlox*, for instance, to the structure of the androecium and the length of the style. A further desideratum in this genus is the complete root system, both in fertile and sterile plants.

Boraginaceae. This is another family in which the opening of the corolla should always be practiced. In some genera it is necessary to observe the accessory lobes which alternate with the petals; these can only be studied by adopting such a procedure.

Lycopus. The structure of the base of the plant is of interest here. The roots need to be carefully dug and cleaned. Observations on the length of the stamens are also in order.

Solanaceae. In the tubular-flowered forms (*Nicotiana, Datura, Petunia,* etc.) the corolla should be opened and laid out flat. The difficult genus *Physalis* seems to offer possibilities for a better interpretation based on a study of flower-structure.

Scrophulariaceae. Not only should some of the corollas be pressed out open but, since this is one of those families in which remarkable adaptations to insect pollination are seen (especially in the tubular-flowered genera—*Penstemon, Gerardia,* etc.) notes on shape, color, bearding and markings of the corolla are desired. In *Gerardia* and allied genera the corollas are fugacious. Fine specimens may be secured by collecting heavily budded individuals and placing them in rolled wet newspapers with their tips toward the light. Early the following morning the flowers will have opened and are then ready for the press.

Galium. Most keys call for a knowledge of habit; the label ought therefore to tell whether the plant was erect or reclining.

Valerianella. Notes on the color of the corolla are advantageous, as are observations on the ratio of the sterile to the fertile cells of the fruit.

Campanula. The shape of the corolla, whether campanulate, rotate, etc., is of interest. This information may be conveyed by a note or by opening and pressing some of the flowers flat; preferably both.

Compositae. In all Composites, especially those with radiate florets, it is highly desirable that at least a few of the heads be very carefully pressed. Some should face upward, so as to show the character of the disc florets, the receptacle, etc., while others ought to be reversed, in order to bring out the nature of the involucre. This may appear difficult in genera with high receptacles, such as *Rudbeckia* and *Heliopsis,* but can usually be accomplished by the use of thick cotton pads placed over the specimen but *outside* the collecting paper.[1] A highly commendable practice is the breaking open of a separate head, the fragments of which may be retained in a pocket. This will greatly facilitate the study of chaff, pappus, achenes, etc.

Antennaria. The procedure suggested under *Gerardia* of placing plants overnight in moistened newspapers will result in good straight flowering stalks in *Antennaria.*

---

[1] See Fosberg, op. cit. p. 21.

ASTER. A good working specimen of *Aster* will possess representative foliage from different levels, not merely dismembered axes or tops. A note on the color of the rays will be extremely helpful.

BIDENS. Many herbarium sheets contain a mixture of two or more species of *Bidens*. Great care is needed, especially in collecting the smaller forms, which often occur as widely scattered individuals, to secure a uniform series under each number. Mature fruit is as important as flowers in this genus.

ERIGERON. Greater attention needs to be paid to the lower leaves and basal rosettes.

EUPATORIUM. In *E. purpureum* and related species observations are required on flower-color, approximate number of florets in a head and whether the stem is solid or hollow.

HELIANTHUS. If the specimen fails to show whether the cauline leaves are alternate or opposite, this fact merits a note on the label. The underground parts will probably be given greater weight in future treatments of sunflowers.

LACTUCA. Mature fruit is of prime importance in this genus and useful corroborative evidence is contributed by the color of the florets.

SENECIO. Basal leaves and rosettes are of special interest in this difficult genus.

SOLIDAGO. As in *Aster*, with additional attention directed to the basal rosettes and stolons, when present. Excellent taxonomic characters have recently been developed on the basis of the subterranean organs.

HERBARIUM, UNIVERSITY OF PENNSYLVANIA.

ALBINO FORMS OF THE BEACH PEA.—

LATHYRUS JAPONICUS Willd., var. ALEUTICUS (Greene) Fernald, forma **albinus**, f. nov., corollis albidis. TYPE from LABRADOR: Northwest River, Lake Melville, July 30, 1921, *R. H. Wetmore*, Nat. Herb. Can. no. 102,994 (in Gray Herb.).

L. JAPONICUS, var. PELLITUS Fernald, forma **candidus**, f. nov., corollis albidis. TYPE from MASSACHUSETTS: Osterville, June, 1890, *Susan Minns* (in Gray Herb.).—M. L. FERNALD.